EVIDENCE-BASED DENTAL CARE
A fascinating guest editorial appeared recently in the Journal of Dental Research [78(7):1288-91, 1999]. The authors were Richard Niederman and Rachel Bodovinac, of the Office of Evidence-Based Dentistry, Harvard School of Dental Medicine, Boston Massachusetts.

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The article discusses “Evidence-Based Dental Care” as a compliment to “Tradition-Based Dental Care.” It is stated that Evidence-Based Dentistry “emphasizes the integration of good judgement with the best available evidence and the patient’s values in the making of clinical decisions.” The new tools involved are internet linked databases.

The authors point out that Tradition-Based Dentistry evolves from training and experience and - although being practical, prudent and personal - “tends to resemble casuistry more closely than science.” [Ed Note: Casuistry: Subtle but misleading reasoning; esp. about moral principles.]

The article states that Tradition-Based care, while having many benefits, possesses “two elements that can significantly detract from the quality of care: good judgement comes from experience and experience comes from bad judgement”; and, “new research can contradict the bedrock data upon which clinicians base traditional care.” Examples are given on the negative care effects of both of these factors.

It is further stated: “Both the clinical training process and the recent clinical findings suggest that it may be useful for clinicians to consider changing both training and treatment. Clinicians, however, are slow to change.” References are given estimating the half-live of change to be 45 years for surgeons and 20 years for physicians. Although data for dentistry is
lacking, they say the rate of change in dentistry would be similar. The increasing trend towards Evidence-Based Medicine is discussed, which is based on five factors: “1) Francis Bacon’s precepts of the scientific method; 2) Sir William Osler’s application of the scientific method to healthcare; 3) internet facilitated methods of finding the current best evidence; 4) clinical judgement; and 5) the patient’s health belief model.”

The new Evidence-Based Dentistry movement is centered at Oxford University in England and Harvard University in the United States. It now has a journal with an internet site (www.ihs.ox.ac.uk/cebd/ebdjidit.htm). There can be no doubt that medical care is increasingly relying on evidence, especially that of an epidemiologic nature. Dentistry, conversely, continues to base its acceptable treatment on tradition. It is unique, and questionable, that dentistry proudly proclaims the benefits of using materials that have been used for over 100 years (mercury fillings and gutta percha root canals, for example). Dentistry will suffer, and dental patients will be denied the best of treatment so long as the dental profession relies on Tradition.

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STANDARD OF CARE IN DENTISTRY
The previous article highlights the biggest problem faced by the dental profession. To date, dental care, and judgement of dental professionals, has been based solely on tradition. In legal circles, both professional and civil judgement is based on “Standard of Care” (aka “usual and customary treatment”).

To prevail legally, the dentist must provide the same treatment being provided by other dentists in his or similar communities. If the dentist tries new procedures, with or without the benefit of support from published science, any number of dentists are more than willing to testify in opposition.

If every system was devised to guarantee mediocrity, this is it. The dentist must do what every other dentist does, or risk discipline or legal action. This, obviously, serves to bring every dentist down to the lowest common denominator. It also denies the dental patient ready access to the latest innovations in dental care, even if they are well documented scientifically.

The deplorable reliance of the dental profession on outdated tradition MUST be stopped! It will probably take legislative action to do so, as the leadership of the dental profession is apparently too insecure and frightened to do so on its own initiative.

The argument that the public must be protected from fraud and quackery will certainly be raised. This is truly a red herring. Every state already has fraud legislation on the books. However, discipline for fraud MUST BE PROVEN by the State, and the perpetrator must be guilty of malice of forethought. Actions are not fraudulent simply because other dentists are not doing them.

Elimination of the prevailing medieval policies of the dental profession will benefit the dental profession by stopping its slide into the morass of outdated treatment. It will benefit better dentists by not tying them to the yoke of lesser dedicated dentists. It will benefit the patients by providing them ready access to new and modern methodologies and by generally elevating the quality of all dental care by modernizing the delivery of dental therapy throughout the profession.

Finally, the millions of dollars spent on dental research for developing advances in techniques and therapy, much of it from patient taxpayer taxes, that are now wasted in the limbo of tradition would become valuable immediate contributions to patient health.

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COMPLAINT FILED AGAINST CALIFORNIA DENTAL BOARD

On 4 August 1999, attorney Charles G. Brown of Consumers for Dental Choice sent a letter of complaint against the California Board of Dental Examiners (BODE) to the Department of Consumer Affairs (DCA). The complaint strongly detailed a number of violations by the BODE. The key features of the complaint are:

1. The BODE defied a memorandum from DCA detailing the “probably misleading” nature of the BODE Fact Sheet on amalgam.
2. The BODE stonewalled a Freedom of Information request from the Environmental Law Foundation, resulting in a lawsuit that was settled with taxpayer dollars.
3. The BODE Fact Sheet on dental materials ignored the requirement to detail risks.
4. The Fact Sheet ignored numerous formal contraindications to amalgam use issued by various foreign governments; did not qualify susceptible patient groups; and ignored the provision to inform patients of options.
5. Mercury-free dentistry is legal in the State of California, contrary to the formal statement of the BODE President and two other members.

Mr. Brown further pointed out that the BODE is violating the First Amendment, the anti-trust laws, as well as environmental laws. He pointedly details the violations in each of these areas. Finally, it is detailed how the actions of the BODE President overstep California Law.

Ed Note: Attorneys Charles G. Brown and James S. Turner of Consumers for Dental Choice have done a great deal to aid biological dentists and their patients. The California initiative presents an excellent opportunity to make progress. They deserve everyone’s support! We urge you to send contributions NOW! [1424 - 16th Street, NW, Washington, DC. 20036. T: 202-462-8800.]

ENDODONTIC STUDY GROUP

The increasing controversy over root canal therapy has stimulated great interest among biological dentists. Dr. Darick Nordstrom would like to initiate an online discussion group to share knowledge and ideas on endodontic therapy, especially the use of Biocalex. Interested dentists are urged to communicate with Dr. Nordstrom via his email site: darick@norstromd.com. The first three studies in the “Science” section of this newsletter emphasize the great need to investigate current endodontic therapy, especially regarding the role of the dentinal tubules.

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CONFERENCE

MERCURY IN THE ENVIRONMENT

A major conference of the leading professionals on mercury in the environment will be held in Minneapolis on 15-17 September 1999. The conference is sponsored by nine major organizations, including the Department of Health and the Pollution Control Agency of Minnesota and the U.S. Department of Energy.

All of Session 12, on Friday morning, will be devoted to environmental mercury issues facing the dental profession. The generation and removal of dental mercury in wastewater will be featured.

In view of this conference, actions by a number of foreign governments, and the activities in the United States reported in the last issue, it is becoming increasingly apparent that the dental profession can no longer evade its role in contributing mercury to the environment. It would be wise for conscientious dentists to take steps now, before it is too late.

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SCIENCE

Microleakage of Human Saliva Through Dentinal Tubules Exposed at the Cervical Level in Teeth Treated Endodontically.

Berutti, E.
ABSTRACT: This study investigated the possibility of saliva recontamination occurring between the root canal wall and sealer through dentinal tubules exposed after the cementum was removed at the cervical level by root planing and treatment with citric acid. Thirty-four extracted human maxillary anterior teeth were randomly placed into five groups after chemomechanical preparation and obturation with gutta-percha and sealer; the sealer was allowed to set for 48 h. A ring 3 mm high, at the cervical level, was subjected to root planing, with complete removal of the cementum. All specimens were coated with two layers of nail polish and two layers of sticky wax, except for the ring subjected to root planing that was treated with citric acid for 30 s.

The specimens were exposed to human saliva for 20 to 80 days and then immersed in dye to determine microleakage. Specimens were cleared and measurements made to the maximum point of dye penetration. All of the specimens exposed to saliva showed leakage except for the negative control, wherein no dye penetration was seen. Where leakage was found, the dye penetrated between the canal walls and the sealer to increasing depths, proportional to the time of exposure to the saliva. Statistical analysis confirmed these data, evidencing a difference between the means, which was highly significant for all pairs.

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Periapical Cementum as Possible Reservoir for Endodontic Infection.
Hollis, AW; Andreana, S; DiFlorio, RE; Hall, RE; Cohen, RE; Ciano, SG; Bush, P.
ABSTRACT: The purpose of this study was to investigate the role of periapical root cementum in endodontic re-infection. Ten teeth from ten patients with periapical radiographic endodontic lesions, periodontally disease-free, were scheduled for extraction due to unrestorability. Patients were systemically healthy and had taken no antibiotics in the year prior to the extraction. Extractions were performed according to standard procedures. The teeth were fixed in 10% formalin for 24-48 hours. The periapical soft tissues were gently removed with a sterile blade and the apical thirds removed using sterile fissure burs. The samples were additionally fixed and then processed for S.E.M. analysis. The outer surface of the samples was inspected at magnification up to 10,000 X.

Six out of ten samples showed presence of microorganisms, mostly cocci and small rods, on the outer orifices of lateral canals. Our results indicate that bacteria colonize the periapical root cementum. These microorganisms may play a role in the re-infection of the periapical area.

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Immunohistological Studies on Apical Parts of the Roots With Infected Canals.
Matsuo, T; Matsuoka, N; Yoshida, Y; Fujinaka, K; Nakae, H.
ABSTRACT: Apical part of the root with infected canal is important not only for the pathogenesis but the treatment of periapical pathosis, because it is the front of the host and the parasite. We investigated the prevalence and localization of selected bacteria invading dentinal tubules of the apical third of infected roots immunohistologically. We also examined the prevalence of bacteria in the root canals in this part.

Antisera against 16 bacteria selected for this study were prepared by immunizing New Zealand rabbits. Twenty-two extracted teeth with apical lesions were selected. For the examination of dentinal tubules, samples were fixed, decalcified with Plank-Rychlo solution,
and embedded in paraffin. For the canals, samples were fixed with half-Karnovsky and embedded in MMA without decalcification to maintain the contents. The bacteria in the specimens were detected non-specifically by Brown-Brenn stain and specifically by the labeled streptavidin-biotin method with specific antisera against the selected bacteria. About 30% of the examined teeth showed bacterial invasion of dentinal tubules of the apical parts, though the invasion of specific bacteria of apical thirds was significantly lower than that of coronal thirds (p<0.05; Mann-Whitney U test). Lactobacillus casei, Fusobacterium nucleatum, Peptostreptococcus micros were abundant, whereas Campylobacter rectus and Actinomyces viscosus were not detected. F. nucleatum and Eubacterium nodatum penetrated deeply into dentin. In the root canals, all the bacteria examined in this study except Staphylococcus aureus were detected.

This immunohistological study revealed the actual condition of the apical part of the root with infected canal, and suggested that the canal enlargement procedure could not remove completely the bacteria that invaded deeply in the dentinal tubules of the roots.

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Use Of the Ca(OH)2 In The Treatment of Chronic Periapical Lesions.

Morato, ICB.


ABSTRACT: Studies have been carried out aiming to demonstrate the antimicrobial and curative properties of calcium hydroxide in treatment of periapical lesions. Canals with chronic periapical lesions were treated and retreated endodontically, to test the curative properties of Ca(OH)2, the efficacy of the methodology adopted and get the clinic cure of those lesions.

A group (1) of 25 patients bearing chronic periapical lesions were selected, with radiographic evidences of periapical radio lucidity and sometimes radicular reabsorption. Clinic and radiographic controls were made before and after the endodontic treatment with modified Grossman cement (group 1) and Sealer 26 (group 2). The patients did not present any acute clinical symptoms. Some patients had sensitivity to apical palpation and vertical and/or horizontal percussion with clinic diagnosis of pulpar necrosis.

In group 1, 48 teeth were endodontically treated, as well as 40 teeth in group 2, in total of 109 roots with chronic periapical lesions. The treatments were carried out in 3 or 4 sessions, with an interval of 30 to 60 days for the last session. The curative intracanal medication was made with the lentulo spiral carrying a paste of calcium hydroxide P.A. in isotonic solution of sodium chloride at 0.9%, until the whole extension of the canals and periapical region was entirely filled.

The patient was then given a provisory discharge from treatment during 30 days before the final session. After that period the patient came back and a clinic and radiographic evaluation of the teeth being treated was carried out.

Once evidenced the total lack of symptoms, and upon radiographic exam with an image already showing some bone condensation on the area of the chronic periapical lesions, the final filling of the teeth was made. An “apical cover” with Ca(OH)2, in portion of 0.25 to 0.50 mm of the work length was placed in group 1. The final filling of radicular canals was made with modified Grossman cement (group 1) and Sealer 26 cement (group 2). The patients were asked to come back 6 months and a year and even 4 years after treatment for clinic and radiographic control of all teeth submitted to endodontic treatments.
We have observed that the clinic and radiographic results showed signal of cure of the chronic periapical lesions just from 30 days using the Ca(OH)2. Total cure in the clinic-radiographic control 6 months and 1 year after the endodontic treatments was observed. One year after the treatment it was evidenced, through clinic and radiographic exams, that there was a process of repairing of periapical lesions in 46 out of the 48 teeth in group 1 and in 39 out of 40 teeth in group 2.

The methodology adopted, with the Ca(OH)2 P.A. for treatment of chronic periapical lesions proved effective because a clinical cure of 96% of such lesions was achieved. No differences were detected using modified Grossman cement or Sealer 26 cement in endodontic treatment.

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Long Term Effects of Various Iodine and Fluorine Doses on the Thyroid and Fluorosis in Mice.
Zhao, W; Zhu, H; Yu, Z; Aoki, K; Misumi, J; Zhang, X.
OBJECTIVE: To elucidate the participation of the independent and combined long term effect of various concentrations of iodine and fluorine on the pathogenesis of goiter and fluorosis in mice.
METHODS: Nine drinking water supplies with different iodine and fluorine content were prepared by combination of potassium iodate and sodium fluoride solutions in bidistilled water. The concentrations of iodide were: 1. iodine deficiency (ID) 0.0; 2. iodine normal (IN) 20.0; 3. iodine excess (IE) 2500.0 μg/l; and those of fluoride were: 1. fluoride deficiency (FD) 0.0; 2. fluoride normal (FN) 0.6; fluoride excess (FE) 30.0 mg/l. A total of 288 Kunmin mice was divided into 9 groups, consisting of 32 animals each and each group, in addition to basal diet, received one of following iodide/fluoride mixtures: ID+FD, ID+FN, ID+FE, IN+FD, IN+FN, IN+FE, IE+FD, IE+FN, IE+FE. By such manner, one half of the animals of each group was treated for 100 days and the other half for 150 days.

RESULTS: It was found that ID only and IE only could both induce the goiter. FE induced dental fluorosis and increased fluorine content in the bone. In addition, fluorine also affected the thyroid changes induced by ID or IE. After 100 days of treatment, fluorine showed some stimulatory effect on the thyroid in ID conditions and inhibitory effect in IE conditions. After 150 days, however, the effects of fluorine on the thyroid reversed as compared with that of 100 days. On the other hand, difference of iodide intake could also increase the toxic effects of FE on the incisors and bones. The rate and degree of the incisor fluorosis, the fluorine contents in the bone were significantly higher in the ID+FE group than those in the IN+FE and IE+FE groups.

CONCLUSIONS: Both iodine deficiency and excess induced goiter as well as other functional and histopathological changes in the mouse thyroid. Excessive fluorine caused fluorosis of incisors and limb bones. In addition, iodine and fluorine do have mutually interacting effects on both goiter and fluorosis in the experimental mice.

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Relationship Between Herpesviruses and Adult Periodontitis and Periodontopathic Bacteria.
Contreras, A; Umeda, M; Chen, C; Bakker, I; Morrison, JL; Slots, J.
BACKGROUND: Various mammalian viruses and specific bacteria seem to play important roles in the pathogenesis of human periodontitis. This study examined the relationship between subgingival herpesviruses and periodontal disease and potential periodontopathic bacteria in 140 adults exhibiting either periodontitis or gingivitis.

METHODS: A nested-polymerase chain reaction (PCR) method determined the presence of Epstein-Barr virus type 1 and type 2 (EBV-1, EBV-2), human cytomegalovirus (HCMV), and herpes simplex virus (HSV) and a 16S rRNA PCR
detection method identified Actinobacillus actinomycetemcomitans, Porphyromonas gingivalis, Bacteroides forsythus, Prevotella intermedia, Prevotella nigrescens, and Treponema denticola.

RESULTS: Using a logistic analysis, EBV-1 showed significant positive association with P. gingivalis (odds ratio [OR] 3.37), and with coinfections of P. gingivalis and P. intermedia (OR 4.03); P. gingivalis and B. forsythus (OR 3.84); P. gingivalis and T. denticola (OR 4.17); P. gingivalis, B. forsythus, and T. denticola (OR 4.06); and P. gingivalis, P. nigrescens, and T. denticola (OR 3.29). EBV-1 also showed positive association with severe periodontitis (OR 5.09), with increasing age (OR 1.03), and with periodontal probing depth at the sample sites (OR 1.77). HCMV was positively associated with coinflections of P. gingivalis and P. nigrescens (OR 3.23); P. gingivalis, B. forsythus, and P. nigrescens (OR 3.23); and P. gingivalis, P. nigrescens, and T. denticola (OR 2.59); with severe periodontitis (OR 4.65); and with age (OR 1.03). Patients with mixed viral infections revealed significant associations with P. gingivalis (OR 2.27), and coinfections of P. gingivalis and B. forsythus (OR 2.06); P. gingivalis and P. nigrescens (OR 2.91); P. gingivalis, B. forsythus, and P. nigrescens (OR 2.91); and P. gingivalis, P. nigrescens, and T. denticola (OR 2.70) with the clinical diagnosis of slight (OR 3.73), moderate (OR 3.82), or severe periodontitis (OR 4.36), and with probing depth at the sample sites (OR 1.39). HSV and EBV-2 showed no significant associations with any of the variables tested.

CONCLUSIONS: The results indicate that subgingival EBV-1, HCMV, and viral coinfactions are associated with the subgingival presence of some periodontal pathogens and periodontitis. Herpes viruses may exert periodontopathic potential by decreasing the host resistance against subgingival colonization and multiplication of periodontal pathogens.

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Colour Vision Loss in Workers Exposed to Elemental Mercury Vapour.
Cavallari, A; Belotti, L; Gobba, F; Luzzana, G; Rosa, P; Seghizzi, P.
ABSTRACT: We evaluated colour vision in 33 workers exposed to elemental mercury (Hg) vapour and in 33 referents matched for sex, age, alcohol consumption and cigarette smoking. The results were expressed as colour confusion index (CCI). In the workers urinary excretion of Hg (HgU) ranged from 28 to 287 micrograms/g creatinine. Subclinical colour vision loss, mainly in the blue-yellow range, was observed in the workers. This effect was related to exposure, as indicated by the correlation between HgU and CCI (r = 0.488, p < 0.01). In the workers whose HgU exceeded 50 micrograms/g creatinine, mean CCI was significantly increased compared to the matched referents.
The results suggest that exposure to elemental Hg inducing HgU values exceeding 50 micrograms/g creatinine can induce a dose related colour vision loss.

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Reversible Color Vision Loss in Occupational Exposure to Metallic Mercury.
Cavallari, A; Gobba, F.
ABSTRACT: Color vision was evaluated in twenty-one mercury exposed workers and referents matched for sex, age, tobacco smoking, and alcohol habits. The Lanthony 15 Hue desaturated panel (D-15 d) was applied.
In the workers, mean urinary Hg (HgU) was 115 +/- 61.5 microgram/g creatinine; in all but one the values exceeded the biological limit (BEI) proposed by the American Conference of Governmental Industrial Hygienists.
A dose related subclinical color vision impairment was observed in Hg-exposed workers compared to referents. Just after the survey, working conditions were improved. Twelve months later the workers were reexamined. Mean HgU was 10.0 microg/g creatinine and in no subjects was the BEI exceeded. Color perception was significantly improved compared to the first examination and, furthermore,
no differences were observed between exposed workers and referents.
The results add evidence that the color vision loss observed during the first part of the study was related to Hg exposure and, moreover, show that this effect is reversible. These data indicate that metallic Hg can induce a reversible impairment of color perception. This suggests that color vision testing should be included in studies on the early effects of Hg. The possibility of applying the D-15 d as an early effect index in the biological monitoring of Hg exposed workers should also be entertained.

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FORUM

IAOMT 1999 ANNUAL MEETING
DATE: Friday-Saturday, 8-9 October 1999.
SITE: Atlanta, Georgia.
HOTEL: Hotel W (formerly Sheraton Perimeter Center Hotel and Suites Atlanta), 111 Perimeter Center West, Atlanta, GA 30346. T: (770) 396-6800, (800) 683-6100; F: (770) 394-5514. Specify IAOMT room rate: $109.00/night; or suite: $119.00/night.
MEETING REGISTRATION: IAOMT, P.O. Box 608531, Orlando, FL 32860-8531. T: (407) 298-2450; F: (407) 298-3075. IAOMT members: $475.00 U.S.; Non-members: $575.00 U.S. [Includes spouse or one staff member, Friday and Saturday lunches for both, and Saturday evening Annual Awards Banquet for both. Additional auxiliary: $100.00 each [includes two lunches and banquet]. [Meals included only if registered by 10/05/1999]
MEETING HOST: Dr. Ronald Dressler.
WELCOME NO-HOST RECEPTION: Thursday, 7 October 1999, 7:30pm.
PROGRAM: Friday morning Clinical Theme: Cavitations: Stephen R. Evans, DDS and Wesley E. Shankland, DDS.
Friday Afternoon Speakers:
Dr. Agnes Koubi: “Clinical Determination of Dental Foci in the Medically Compromised Patient.”
Elaine Reedy, PhD: “Blood Chemistry Analysis.”
James E. Hardy, DMD: “Bio-Electromagnetism and Dental Metals.”
Saturday Speakers:
Gerald Hirsch, PhD: “Methionine - The Missing Antioxidant.”
Anne O. Summers, PhD: “Amalgam Mercury, Gut Bacteria & Antibiotic Resistance.”
J. Curt Pendergrass, PhD: “Gingival Crevicular Fluid Components and Analysis.”
Boyd E. Haley, PhD: “A Review of Mercury and Alzheimer’s Disease.”
Charles R. Cornett, PhD: “Interregional Brain Mercury Distribution and Alzheimer’s Disease.”
1999 ANNUAL AWARDS BANQUET: Saturday, 9 October, 7:00pm.

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Rebuilding and Restoring Health
Health Realities: Queen and Company.
SITE: Manitou Springs, Colorado.
PROGRAM: H. L. “Sam” Queen; Boyd E. Haley, PhD; Anne O. Summers, PhD; Bob S. Hsia, PhD; Ronald R. Watson, PhD.

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National Dental Seminar in Homeopathy
DATE: 15-17 October 1999.
SITE: Schaumburg (Chicago), Illinois.
HOTEL: AmeriSuites Hotel. 1851 McConner Parkway, Schaumburg, IL 60173. T: (847) 330-1060; F: (847) 330-1001. $79.00/night.
MEETING REGISTRATION: National Dental Seminar. P.O. Box 123, Marengo, IL. 60152-0123. T: (815) 568-5222; F: (815) 568-7422. Basic Course (before 1 Sept): $495 ($395); Advanced Course: $475 ($375); add. spouse/auxiliary: $225 ($150).
FACULTY: Craig A. Zunka, DDS; Phil Parsons, DDS; Daniel Dieska, DDS; Jack Belitz, DDS; Judith Belitz, DDS; Harris Kimbrough, DDS.